

# COGGON SOLAR LLC: Rezoning Applications, Narrative & Attachments



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June 30, 2021

# Rezoning Application for Renewable Energy Overlay: Utilities, Utility-Scale Solar Installation

Coggon Solar LLC

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## Introduction

Coggon Solar LLC (the “Project”) is requesting a rezoning permit from Linn County to allow for the construction and operation of a 100MW<sub>(AC)</sub> utility-scale solar power generation facility, approximately 2.75 miles west of the town of Coggon. The Project area is approximately 750 acres; however, the Project footprint itself will ultimately be less than 640 acres. Construction of the Project is anticipated to begin in Q1 2022, with a projected Commercial Operation Date (“COD”) of December 2022.

## Description of the Applicant

The Project will be developed, constructed, and operated by Coggon Solar LLC, with the assistance from Clenera, LLC (“Clenera”), its development and management partner. Clenera is a privately held renewable energy company headquartered in Boise, Idaho. Combining breakthrough technology with a deeply integrated team approach, Clenera provides reliable, affordable energy systems and helps its partners become clean energy leaders in their communities. Clenera’s current operating portfolio exceeds 1.4 GW, with more than 14 GW of solar and storage assets in development. Learn more at [www.clenera.com](http://www.clenera.com).

## Description of the Project

The existing land use at the Project site and surrounding area is agriculture. The Coggon Solar requests that the Project be granted an overlay rezoning of agriculture / renewable energy (AG-RE).

The Project location was selected, in large part, due to its proximity to the Central Iowa Power Cooperative’s (“CIPCO”) Coggon Substation, located immediately northeast of the Project site and south of County Road W63. The Coggon Substation was identified by CIPCO as having sufficient capacity for the 100 MW<sub>(AC)</sub> solar Project to interconnect utilizing existing infrastructure at the Coggon Substation (i.e., no substation improvements will be required to accommodate the Project). The Applicant executed a 20-year Power Purchase Agreement (PPA) with CIPCO in April 2021. The Project is expected to operate as merchant during the remaining non-contract period or under an additional PPA with CIPCO or other utility off-taker (between 10 and 15 years). In addition, an interconnection agreement between Coggon Solar and CIPCO (attached) was executed in May 2021. The Power Purchase Agreement (PPA) for the Project was executed in April 2021.

It is worth noting that the electricity generated by the Project will serve the load within the CIPCO member system, including Linn County.

The Project will utilize solar photovoltaic (PV) modules to convert the energy from sunlight to DC electricity. The modules that will be used for the Project do not contain any hazardous materials that are called out by the Resource Conservation and Recovery Act (RCRA). The modules will be mounted on single-axis trackers, which rotate along a North-South axis to track the sun movement from the East in the morning to the West in the evening. It is expected that there will be approximately 325,000 PV modules at the site. For public safety and security purposes, the perimeter of the Project will be surrounded by fencing as well as secure access gates and on-site monitoring systems that will be managed remotely. Roads will be located around the perimeter and interspersed through the PV array. The solar modules will be connected to solar inverters which convert DC electricity to AC electricity. The inverters are then joined in series and parallel, ultimately connecting to the Project substation. Within the Project substation, a main power transformer steps up the voltage from the collection system

voltage to 161kV for interconnection to the transmission system at the adjacent CIPCO Coggon substation.

## Project Parameters

<b>Cumulative Nameplate DC Capacity</b>	<b>Up to 135 MW<sub>(DC)</sub></b>
<b>Cumulative Nameplate AC Capacity</b>	<b>100 MW<sub>(AC)</sub></b>
<b>Maximum Power to the Transmission Line</b>	<b>100 MW<sub>(AC)</sub></b>
<b>DC/AC Ratio</b>	<b>1.15 – 1.35</b>
<b>Racking</b>	<b>Single Axis Tracking</b>
<b>Fuel Source</b>	<b>Solar</b>
<b>Design Life</b>	<b>35 Years</b>

## Location of Project, Zoning, Land Ownership and Suitability of Location

The Project will be located approximately 2.75 miles west of Coggon, Iowa. Coggon Solar has signed long-term leases with private landowners providing the land required for the Project. The existing land use is farming.

The current zoning for the site is AG. The proposed rezoning is RE – AG.

There are multiple factors associated with the Project site that meet the criteria needed to make the location suitable a utility-scale PV solar project including: 1) access to a nearby substation or nearby transmission line with sufficient capacity to transmit the electricity generated by the Project; 2) local government commitment to renewable energy development; 3) access to substantial private land; 4) favorable solar resources; and 5) appropriate terrain. The selected Project site meets all of these requirements, making it well-suited and preferred for the Project.

- 1) The Coggon Substation, owned by CIPCO, is adjacent to the Project, providing access for the electricity generated by the Project to the power grid. Of note, due to the proximity of the CIPCO substation, it will not be necessary to build transmission lines from the Project to a distant substation, which is very beneficial in terms of limiting disruption to the viewshed.
- 2) Linn County's Comprehensive Plan specifically calls out support for alternative and renewable energy, including utility-scale projects. The Guiding Principle of the Comprehensive Plan's alternative and renewable energy section is "Encourage and support the use of alternative and renewable energy resources and energy efficiency strategies." Utility-scale solar is a key component of the Plan. The Comprehensive Plan goes on to state, "Use alternative and renewable energy resources and energy efficiency strategies to build the local economy, improve the environment, and reduce long-term risks associated with traditional energy supply." The Project does exactly these three things by: 1) adding significant tax dollars over the life of the Project to the local and county economies; 2) utilizing non-polluting and renewable

energy from the sun and improving the environment by offsetting CO<sub>2</sub> emissions associated with traditional power generation – see *Benefit to the Community & Environment* section of this narrative for additional examples; and 3) Unlike traditional energy sources, especially fossil fuels, solar energy production is not as sensitive to economic fluctuations and political forces.

- 3) The Project has leased a cumulative total of 750 acres of land from local, private landowners, of which less than 640 acres will be used for the Project.
- 4) The location has an average direct solar irradiance value of 4.0 – 4.5, which is favorable for a PV solar installation.
- 5) Concerning terrain, the relatively flat nature of the Project area is ideal for a utility-scale PV solar facility of this size. As a result, it is anticipated that there will be minimal earthwork required in terms of terrain.

## Communication with Neighbors & Timeline for Future Communications

The first public outreach for the Project occurred in January 2019 at the Coggon Community Center in Coggon, IA, with Mr. Mike Viehweg, one of Clenera's land managers, conducting the meeting. The purpose of the meeting was to meet local community members who might have an interest in leasing their land to Coggon Solar for a utility-scale solar power generation facility. Mr. Viehweg provided basic information concerning Coggon Solar's proposed utility-scale solar Project, and that local land was being sought for the Project. Of note, Coggon Solar was quite clear that it is not interested in purchasing land for the Project. As a result of the cooperation of multiple landowners, Coggon Solar has leased sufficient land to proceed with development of the Project.

The next communication with local community members came on December 17, 2020, with a letter and Project description flyer mailed to neighbors living within 1,000' of the Project site (per the Iowa Utilities Board (IUB) requirements) – see attached letter and flyer. The letter requested feedback and comments concerning the Project. Coggon Solar received comments back from three neighboring landowners and one out-of-state landowner. Two related responses were opposed to the Project, and two others expressed concern while being optimistically reserved about the Project. The most adamantly opposed neighbor who responded to the letter was one who had offered to sell their land to the Project in January 2019, at what the landowner noted was an "inflated" price but said landowner would not lease their land for the Project. Again, as previously noted, the Project was seeking to lease land as opposed to purchasing land.

Of note, because the Project was in its initial phases of development, including securing land leases until late 2020, there was not any further communication with the broader public until the letters of December 17, 2020 were mailed. The gap between the January 2019 community meeting and the December 2020 letter was because there was nothing substantive for the Project to report until that time.

In May 2021, a group of local landowners submitted a petition opposing the Project's application with the (IUB) requesting a Certificate of Convenience, Use and Necessity. On June 11, 2021, the Project sent a letter to the signors of the petition expressing an eagerness to "better understand [the signors'] concerns regarding the project," and inviting them to "reach out directly with questions or arrange a time to speak or meet [with Project representatives]." An email and mailing address were provided for

communication. As of June 30, 2021, only one signor of the petition has reached out, via telephone, to the Project developer. That individual expressed several concerns but stated that his primary objection was that of the Project taking “prime farmland” out of production.

The Project will hold a community meeting, to include the broader public, on July 14, 2021, as required by the IUB. The meeting will be held at the Coggon Center, located in Coggon Iowa. Per IUB regulations, a packet of information, was mailed June 25, 2021, notifying residents within 1,000 feet of the Project boundary of the meeting. In addition, a public notice of the meeting will be published in the local newspaper.

The Project will also send out update mailings to landowners prior to the start of construction; and 2) prior to the commercial operation date COD of the Project.

## Construction Schedule, Density, Construction, Road Maintenance, and Project Phasing

Construction of the entire Project is expected to occur over approximately a period of 12 months, which includes mobilization, construction/installation, commissioning/testing, and demobilization, commencing in Q1 2022, with a COD of December 2022. Of note, there will not be any type of phasing as the Project will follow a traditional construction process, beginning with mobilization to earthwork, facilities installation to full operations.

At just under 640 acres, the Project site will be densely utilized because the area will be developed and feature approximately 325,000 PV modules.

All construction activities will be conducted in compliance with all applicable local, state, and federal requirements.

Through the use of best practices, including avoidance and mitigation, it is expected that no damage will be caused to public drainage systems, including water pipes, sewage lines.

Electrical service for both construction and post-construction activities will be provided using existing electrical infrastructure. It is also expected that water used for dust control during construction, as well as module washing post-construction, will be obtained from a well or wells owned by those parties leasing their land for the Project, or from other local sources.

The solar arrays are expected to largely follow the natural contours of the project site. It is expected that minimal earthwork/clearing will be necessary for the Project due to the existing near suitable topography and current use of the site. Some localized grading and spot/cut fill may occur

Lay-down yards and temporary staging areas will be interspersed throughout the site for construction materials, and a construction office and trailers will be located adjacent (to the west) of the CIPCO substation.

The Project acknowledges that it is responsible for on-going road maintenance and dust control measures identified by the Linn County Engineer during all phases of construction. Best management practices, including the use of a water truck, will be used to keep dust to a minimum. It is also possible



that the Project will lay down an approved mix of native vegetation seed following the earthwork to stabilize the ground and act as another dust control measure. In addition, silt fences, coir logs (coconut fiber), coir blankets, etc., will be used for temporary erosion and sediment control measures during construction.

The on-site workforce will consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. construction typically requires a monthly average of approximately 100 to 200 employees during the construction period, with labor requirements peaking at approximately 300 workers. As prior experience has shown, special circumstances may warrant an increased number of on-site workers for a short period of time, which is typically a few weeks.

Construction will generally occur between 7:00 a.m. and 7:00 p.m., Monday through Saturday. Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. For instance, during placement of concrete or during hot weather, it may be necessary to start work earlier to avoid some activities during high ambient temperatures. During the start-up phase of the Project, some activities (such as equipment and system testing) may continue 24 hours per day, 7 days per week. Construction hours will comply with local permit requirements.

## Infrastructure

The Project will include photovoltaic solar modules, invertors, a switchyard, security fencing, a perimeter road and roads interspersed throughout the Project and temporary use areas.

Please see the Master Site Plan for module layout and location.

Project facilities will be located entirely on privately owned land and will encompass approximately 640 acres in Linn County, Iowa. All Project facilities will be enclosed by fences.

The Project will consist of three major components: PV solar arrays (the main Project footprint), linear facilities (as further described below), and transmission interconnection facilities (a substation/switchyard that interconnects to the existing CIPCO 161-kV Woodring Substation via an estimated 300-400' gen-tie transmission line. Each of these components is explained in detail below.

- PV modules/arrays;
- solar trackers or fixed support structures;
- direct current (DC) collection cable and combiner boxes;
- solar power inverters and medium voltage transformers;
- electrical collection system (34.5-kV lines); and,
- substation including breakers, switches, and main step-up transformer and gen-tie to existing point of interconnection (POI).

A number of linear facilities will be developed as part of the Project. These linear facilities may include:

- a network of internal access roads
- a substation to connect the gen-tie to the existing point of interconnect (POI)
- meteorological towers and weather data collectors
- distribution power for construction and operations control systems; and

- communications cables or lines.

All road improvements will be located on private land or along county road rights-of-way within the overall site. A network of internal access roads will be constructed based on the finalized Project Area footprint.

### **PV Modules/Arrays**

The Project will utilize approximately 325,000 state-of-the-art PV technology that has been widely deployed at commercial scale solar facilities by the Project and other developers. PV technology utilizes the sun's light energy and converts it directly into DC electrical energy within the PV panels, referred to as "modules." The PV modules can be mounted together in different configurations, depending on the equipment selected, on a common support framework. The modules will be dark blue or black in color and are inherently designed to absorb light, thus limiting glare and light reflection.

The modules are grouped together in solar arrays. The size of the array is based on the capacity of the equipment selected and is intended to generate the desired overall voltage and current output. The overall capacity of the conceptual Project design (100-MW alternating current [AC]) is achieved with sufficient AC arrays to deliver 100 MW at the point of delivery. Solar energy technologies continue to evolve at a rapid rate and as a result, the exact arrangement and nature of the PV systems will be determined during the final design and appropriate updates will be made to prior to construction.

As previously noted, the modules that will be used for the Project do not contain hazardous materials that are called out by the Resource Conservation and Recovery Act (RCRA). Owing to the lack of hazardous materials in the modules, there is no possibility that the modules will leak such materials in the event of module damage, and as such there will be no damage or harm to the land, domestic animals, wildlife, flora, humans, the atmosphere, or water resources – drainage, runoff, etc.

### **Solar Trackers and/or Fixed Support Structures**

There are different types of mounting structures for the modules, depending on whether the modules will be fixed in one position or intended to track the sun's motion during the day. A solar tracking mechanism is used to maximize the solar energy conversion efficiency by keeping the modules perpendicular to the sun's energy rays throughout the day. This completed assembly of PV modules mounted on a framework structure is called a "tracker" as it tracks the sun from east to west. The PV module rows will typically be oriented north-to-south based on the mounting structure design; however, exact module support structure types will be determined during the final design.

The single-axis tracker configuration is more complicated and is discussed in more detail below. A fixed support structure is also possible. In this application, the fixed structure will orient the panels in a permanent position towards the south at a certain angle to optimize production throughout the year without any mechanical movement or drive motors.

At this time, there are two types of tracker systems that may be selected for the Project: a ganged system or a standalone tracker system. However, if other technologies are developed they may be employed for the Project during final Project design. A ganged tracker system uses one actuator to control multiple rows of PV modules through a series of mechanical linkages and/or gearboxes. A standalone system utilizes a single actuator for each row of PV modules. The exact tracker manufacturer and model will be determined in the final design. All trackers are identical in intended function, following the motion of the sun to increase the amount of electricity generated.



Module layout and spacing is optimized to balance energy production versus peak capacity and depends on the sun's angle and shading caused by the horizon surrounding the Project. The spacing between the rows of trackers is dependent on site-specific features and tracker selection and will be identified in the final design. The DC output from the PV arrays will be transmitted to inverters through DC electrical cables.

The modules will be mounted in arrays on single-axis trackers, which rotate along a north-south axis to track the sun movement from the east in the morning to the west in the evening. The arrays will generally be arranged in a linear pattern as allowed by topography and other environmental constraints. In the case of high winds or heavy snowfall, the trackers move the modules to a position where the wind will put a minimum strain on the racking and support system. The solar trackers will be powered by motors and will be directed by an actuator that responds to the sun's direction.

### **Electrical Collection System**

PV modules generate a lower-voltage DC electrical output that is not suitable for direct connection to the AC utility grid used in the United States. The electrical collection system will be designed to convert the output power from the PV modules from DC to AC and then transform the power from lower voltage to transmission-level voltage for connection to the grid, and to supply auxiliary power to the tracker systems. The DC output from the PV arrays will be transmitted to inverters through DC electrical cables.

As currently configured, the Project may use up to 500 power inverters to accomplish the DC-to-AC power conversion process. The number of modules connected to each inverter is dependent on the specific model of modules, inverters, and their capacities, which will be selected in the final design. In order to allow for greater electrical production in off-peak hours and an overall increase in power production, the DC quantity exceeds the AC plant rating. The resulting AC from each individual inverter package is then routed to the corresponding medium-voltage step-up transformer. Based on the preliminary design, the output voltage from each inverter will be increased to the desired AC collection system voltage (34.5 kV) by these medium voltage transformers.

### **Medium Voltage Transformer/On-site Project Substation**

The AC power will leave the medium voltage transformers via 34.5-kV lateral lines which dead-end at the onsite Project substation. The Project substation will consist of parallel sets of internal power distribution systems (i.e., 34.5-kV buses and circuit breakers, disconnect switches, and main step-up transformer) to increase the voltage to the 161-kV transmission line voltage. The Project substation and interconnections will be built for 161 kV and operate at that nominal voltage. The Project substation will occupy up to 5 acres within the Project area.

### **Interconnection to the POI**

The electrical power from the on-site Project substation will be transmitted through an estimated 300 400' overhead gen-tie line for delivery to the CIPCO Coggon Substation. The gen-tie will be constructed for the nominal operating voltage of the substation, which is 161 kV. If required, the conductor wires will be supported by an intermediate structure. Final hardware design will be determined during final engineering of the gen-tie.

### **Administration/Operations and Maintenance Building, Control Room, and Warehouse Locations**

The Project may include an administration/operations and maintenance (O&M) facility, housed in an

approximately 3,500-square-foot building and located near the Project access road. The building will provide a small administrative area, a work area for performing minor repairs, and a storage (or warehouse) area for housing spare parts, transformer oil, and other incidental chemicals. The administration/O&M building, control room, and warehouse will be air-conditioned and could include offices, a break room, restrooms, and locker rooms with showers. The administration/O&M building may be a pre-engineered metal building with metal siding and roof. The building will be supported on reinforced concrete mat foundations or individual spread footings. The floor will consist of a reinforced concrete slab. The design and construction of the administration/ O&M building, control room, and warehouse will be consistent with all applicable state and local building codes.

Alternatively, some of the pre-existing structures on site may be repurposed and retrofit to fulfill the same functions as the to be constructed facilities described above.

In the event that an O&M facility is not needed on-site, storage containers similar to CONEX boxes will be placed in the designated O&M facility area to store spare parts and equipment.

### **Roads and Access**

Access to the Project facilities will be obtained from county roads. Auxiliary roads inside the facility footprint would be 12 to 25 feet wide and will likely use compacted native materials or gravel surface. The finished width of the internal roads and roads between the sub-areas may be up to 25 feet wide and graded. The majority of the Project Area will remain unpaved with select roadways improved with road base and/or gravel. The entire site will be fenced appropriately using security fencing to restrict public access during construction and operations.

From the internal access roads, access to all areas within the solar arrays is provided by access aisles. These aisles are not roads but clear spaces between the individual rows of solar panels that consist of unimproved native material which allows access to all areas of the site via foot or by use of 4X4 vehicles for maintenance and emergency response. There are no anticipated impacts on local traffic from the new roads added that are within the Project site.

Coggon Solar will make reasonable efforts to place utility connections underground.

### **Avoidance and Mitigation of Damage to Public Infrastructure**

The Master Site Plan will illustrate all roads to be used for the purpose of transporting facility components, construction equipment and construction materials to the Project site. The Project will obtain applicable weight and size permits from the impacted road authority prior to construction.

In cooperation and coordination with the impacted local road authority, the Project will conduct a pre-construction survey of nearby roads that may be impacted by construction of the facility to determine existing road conditions as required by the zoning ordinance. The Project understands that it is responsible for on-going road maintenance and dust control measures identified by the Linn County Engineer during all phases of construction.

The Project will immediately repair damage to public drainage systems stemming from construction, operation, or maintenance of the facility.

It is not expected that there will be more than one or two vehicles will be on site at any given time post-construction. Hence, the Project will not materially impact public roads.

## Operations & Maintenance Plan: Soil Erosion; Stormwater Management; Plant O&M Plan; Ground Cover; Cleaning Chemicals & Solvents; Maintenance, Repair or Replacement of Facility

*Solar Erosion and Sediment Control Considerations.* The Project agrees to conduct all roadwork and other site development work in compliance with a national pollutant discharge elimination system (NPDES) permit as required by the state department of natural resources and comply with requirements as detailed by local jurisdictional authorities during the plan submittal. If subject to NPDES requirements, The Project will submit the permit for review and comment, and an erosion and sediment control plan before beginning construction. The plan will include both general "best management practices" for temporary erosion and sediment control both during and after construction and permanent drainage and erosion control measures to prevent damage to local roads or adjacent areas and to prevent sediment-laden run-off into waterways.

*Stormwater Management Considerations.* For the purposes of pollutant removal, stormwater rate and runoff management, flood reduction and associated impacts, the applicant shall provide a detailed analysis of pre-development and post-development stormwater runoff rates for review by local jurisdictional authorities. Such review may incorporate stormwater management criteria as set forth in the Cedar Rapids Metropolitan Area Engineering Design Standards Manual for detention of specified rainfall events, and infiltration components consistent with practices as detailed in the state stormwater management manual.

Of note, the Project commissioned hydrology and wetland studies to understand pre-existing hydrological patterns and features within the site. These documents are attached to the application. The Project has been designed to avoid all Iowa and FEMA designated flood zones, jurisdictional water features and pre-existing drainage and flow patterns within the Project area and adjacent properties unchanged.

An Operations & Maintenance Plan (physical operation of the facility) is attached to this application.

*Ground Cover and Buffer Areas.* Ground cover around and under solar modules and in the Project site buffer areas will be planted and maintained in perennial vegetated ground cover throughout the full operational life of the Project, with the purposes of preventing erosion, managing runoff, building soil, and increasing the local pollinator density. Of note, the Project will work with county and/or state soil and vegetation experts to identify native seed mixes, including flowering varieties, that will be best suited to meet the needs of the county, the Project, and the environment. In addition, the following standards will be met:

1. Large-Tree Removal – As the Project area is cleared, large-scale removal of large trees will not be necessary.
2. Top-Soils will not be removed from the site during development unless part of a remediation effort.
3. Soils will be planted and maintained for the full operation life of the Project to prevent erosion, manage runoff, and build soil.

4. The Project will work with Linn County and state personnel to identify a suitable native seed matrix to include a mix of native grasses and wildflowers, that will result in a short stature prairie environment. In addition, the Project may use blooming shrubs in the buffer areas for visual screening as appropriate. It is understood that non-native or naturalized species can be selectively planted for maintenance purposes as part of an approved site plan.
5. Plant material will not be treated with systemic insecticide, particularly neonicotinoids.
6. Other practices, such as small-scale farming or grazing will not be conducted on the site as it is incongruent with the design and utility of a large-scale solar power generation facility.

See Attached Draft Vegetation Plan (a final plan will be submitted once the native seed mixes are agreed upon between the county soil and vegetation experts.

*Cleaning Chemicals and Solvents.* All chemicals or solvents used to clean photovoltaic panels will be low in volatile organic compounds and use recyclable or biodegradable products to the extent possible. Any on-site storage of chemicals or solvents will be referenced.

*Maintenance, Repair or Replacement of the Facility.* Maintenance will include structural repairs and integrity of security measures. For security purposes, the entire perimeter of the facility will be fenced with strands of barbed wire. In addition, the facility will also be monitored remotely with motion-sensor lighting. Site access shall be maintained to a level acceptable to emergency response officials. Any retrofit, replacement or refurbishment of equipment shall adhere to all applicable local, state, and federal requirements.

## Decommissioning Plan

An Iowa-licensed professional engineer-stamped decommissioning plan, which includes the anticipated cost of decommissioning at the Project's end of useful life, as well as component recycling and repurposing values, is attached to this application. Project-specific decommissioning details include the following:

1. At or before the end of operations, Coggon Solar will notify Linn County of its intent to decommission the Project.
2. The solar PV modules will be removed from the racking system, loaded into trailers, and shipped off-site for salvage. The steel racking system will be cut into manageable sized sections, loaded into trailers, and hauled off-site for scrap. Typically, the steel posts for the racking system will be removed to a depth of ten (10) feet below grade.
3. The above ground aluminum and copper conductors and below grade medium voltage conductors shall be removed and shipped off-site for salvage. All conduits will be removed and disposed of off-site. The inverters and transformers will be removed and loaded onto trailers and shipped off-site for disassembly and possible salvage. It is assumed that the perimeter fence will be removed and disposed of off-site.
4. The Project's substation will be removed from the site, including all above-grade equipment (e.g., transformers, breakers, busbars), crushed rock surfacing, and fencing. All below grade equipment (e.g., foundations) will be removed to a depth of ten (10) feet below grade.
5. All crushed rock surfacing will be removed from the Project's access road. The removed crushed rock will be loaded into dump trucks and hauled off-site for disposal. The cost to remove the

crushed rock, load it into dump trucks, and haul it to the destination will be at the expense of the Project at which point the ownership of the crushed rock will transfer to the demolition contractor.

6. Following the removal of crushed rock surfacing, a layer of topsoil will be added to replace the removed rock. The areas where crushed rock has been processed will be fine graded to provide suitable drainage. Per the (draft) Vegetation Plan, the area will be reseeded with native seed to restore the open space grazing environment, and to prevent erosion.
7. All disturbed areas at the site will be returned to as close to predevelopment conditions as possible. This will allow all land disturbed by the construction of the Project to be returned to prior use at the end of the useful life of the Project.
8. The activities associated with this decommissioning plan described above are anticipated to be completed within a twelve (12) month timeframe, according to the following schedule:
  - Decommissioning, planning, and permitting: 2 months
  - Demolition and removal of recyclable materials: 9 months
  - Project site restoration: 1 month

## Impact Upon Area and Local Communities, Including Property Values

It is expected that, following construction, the Project will have minimal to no disruptive and/or negative impact on the area.

- The Project will be operated remotely, therefore, it will primarily be an unmanned facility. It is anticipated that a maintenance employee or contractor will be on-site occasionally to conduct maintenance, cleaning PV modules, vegetation management, security, etc., as necessary. This being the case it is not expected that there will be more than one or two vehicles will be on site at any given time post-construction. Hence, not materially impacting public roads, or overwhelming the area with personnel.
- The location of the Project and the conditions under which the Project will be operated will not be detrimental to the public health, safety, or welfare or injurious to properties in the vicinity.
- The Project will not consume water in the operation of the facility; emit odors; generate hazardous or municipal waste; and there will not be any perceivable noise. As previously noted, the modules that will be used for the Project do not contain any hazardous materials.
- The Project will use fully shielded lighting, low-pressure sodium lamps (LPS), and motion sensors to preserve the night skies and scenic viewsheds.
- Signage will be limited to power plant-appropriate signs that will be attached to the perimeter fencing and within the Project. Such signs will include, among others: Gate Numbers; No Trespassing; High Voltage; DANGER; Emergency Contact Information; and other similar warning and notification signs.
- There will be no illuminated or other signs that would negatively impact the scenic viewshed or night skies of the Project area.
- Photovoltaic modules are non-glare and are designed to absorb rather than reflect the sunlight reaching the modules. By way of example, PV modules are generally less reflective than windows or water features. Hence, glare will not be an issue for the residents, travelers on local roads, or from airplanes above.

In terms of glare, according to the web site, **Solar Feeds** article “**Top 8 Solar-Powered Airports in the World,**” dated **September 26, 2019**, some of the major airports in the U.S. and around the world have a significant number of PV solar panels providing power to the airports during the day, demonstrating that glare should not be a concern in terms of airplanes and airports. For example:

- The Cochin International Airport in Kochi, India, has an installed solar capacity of 52MWh/day.
- The San Diego International Airport hybrid (solar modules & EES) has an installed capacity of 5.5MW, as well as 4MWh of EES storage.
- The Minneapolis-St. Paul International Airport’s PV system provides 20% of the electricity used in Terminal One, plus 7,700 metal halide light fixtures in its four parking garages and lots.
- The Tampa International Airport has a capacity of 2MW.

Concerning the Project’s Local Property Values, In July 2019, the **Solar Energy Industry Association** published “**Solar and Property Values: Correcting the Myth that Solar Harms Property Value,**” which cited research supporting the following:

- Examining property value in states across the United States demonstrates that large-scale solar arrays often have no measurable impact on the value of adjacent properties, and in some cases may even have positive effects.
- Proximity to solar farms does not deter the sales of agricultural or residential land.

In addition, the results of a survey conducted by the **Policy Research Project (PRP), LBJ School of Public Affairs, The University of Texas at Austin**, May 2019 “*An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations,*” written by Leila Al-Hamoodah, et. al., “show that while a majority of survey respondents estimated a value impact of zero, some estimated a negative impact associated with close distances between the home and the Facility, and larger Facility size. Regardless of these perceptions, geospatial analysis shows that relatively few homes are likely to be impacted.”

Furthermore, the **U.S. Department of Energy’s National Renewable Energy Lab (NREL)** states that, “. . . numerous studies have found the impact of wind energy generation on neighboring property values to be negligible. As solar farms do not have the same impacts as wind farms (i.e., PV facilities do not cast a shadow on neighboring properties, cause light flicker, or have the same visual impact as wind farms), the impacts on property values caused by solar farms are anticipated to be less than the impacts of wind farms.”

Bearing the SEIA, University of Texas and NREL studies in mind, and considering that the Project will not produce perceptible noise, emit odors, or create waste, it is expected that there will be no adverse effect on local property values caused by the Project.

## Impact on Wildlife

It is anticipated that the Project will have minimal to no impact on wildlife in the area.

The Project conducted an on-site habitat assessment for the presence of sensitive and threatened and endangered species and did not identify any species of concern, in part due to the historical use of the site for agricultural production. The Project consulted with the Iowa Department of Natural Resources and will conduct an Information for Planning and Consultation (IPaC) with the US Department of Fish & Wildlife to ensure that the project is constructed in conformance with state and federal regulations.

There is mounting evidence that once constructed, solar facilities increase local biodiversity and population counts of mammalian and avian species that benefit from the increased food supply resulting from local pollinator habitat within the arrays, and protection from predators the arrays and site fences provide. Because Coggon will be constructed to avoid water features on the site, there will be 'wildlife corridors' throughout the project area that will follow natural water features that will allow for migratory and ground ranging species to traverse the project site largely unimpeded.

Elements that minimize impact to the greatest extent possible have been incorporated into the Project layout and design. Mitigation efforts include minimal lighting and fencing which allows permeability for small animals.

As previously noted, minimal amount of lighting will be used at the substation. However, it is anticipated that low sodium pressure (LSP) lighting will be used, and all lighting will be fully shielded. The fully shielded LSP lighting will serve to not only protect the night skies of Linn County, but will also have minimal to no impact on nocturnal wildlife. Of note, in addition to being fully shielded and using LSP lighting, the lights will also have motion sensors as opposed to being on constantly.

The Project will be surrounded by eight (8)-foot tall chain-link fencing. The purpose of the fence is to protect both the public and the facility. However, in terms of small wildlife, we anticipate that the fencing will be raised approximately 10 inches above the ground to allow small mammals, reptiles, etc., access to the Project area for foraging and habitat. The fence and solar arrays will also provide protection for smaller animals from large predators.

Stantec Consulting Services, a third-party consultant, surveyed the entire project area and prepared a study entitled *Environmental Resources Report: Coggon Solar Project*, which is attached. The study includes a delineation of wetland boundaries and a habitat assessment for federal and state-listed threatened and endangered species within the Project limits. Of note, Stantec is an Iowa-based company, located in Independence, Iowa.

## Use of Agricultural Land for the Project

According to a scholarly report written by Dr. David Loomis, entitled **Economic Impact Analysis of the Badger State Solar Project**, a "valid concern of agricultural land conversion is that the change is often irreversible. However, the present case of leasing agricultural land for a solar energy generating facility rises above this debate in several important ways. First, the use of agricultural land for a solar energy center is only temporary. The term of the solar leases for this Project is 35-years, then they would expire if the option to extend is not exercised. At the end of the lease, the land will be restored to its original condition, suitable for agricultural use. This restoration is ensured by legal terms and conditions as well as likely permit conditions. This is far different from residential or commercial development where the land is often owned in fee and there are no decommissioning requirements or surety."

The use of the site for solar production will allow soil nutrient regeneration to occur resulting in more fertile soils once returned to agricultural production. The land included in the project may be able to immediately use organic farming practices after the decommissioning because fertilizers, pesticides, and other common agricultural treatments will not be used. Further, Coggon Solar's arrays will be underplanted with low-growing native plant ground cover that will prevent erosion and provide habitat



for local pollinators that ultimately will benefit surrounding agricultural production. Second, the land under the solar panels will be vegetated year-round throughout the life of the Project, allowing nutrients in the soil to regenerate. In addition, the land included in the Project may be able to immediately use organic farming practices after the decommissioning of the Project because fertilizers, pesticides, and other common agricultural treatments will not be used. Finally, many solar projects use “pollinator-friendly” vegetation in and around the solar Project, which could help pollinators in the area thrive. Accordingly, solar energy is in fact a benefit to agricultural land and the surrounding community.

Third, the total amount of agricultural land being used for solar energy is miniscule compared to the conversion of agricultural land permanently to residential housing and commercial development. The free market economic forces are working properly because solar farms present landowners with an opportunity for a higher value use on their land.

Several of the project’s underlying landowners are small family farms and have only leased a portion of their agricultural landholdings to the project. They intend to continue to farm the balance of their land holdings. The revenue provided by the solar leases will provide a consistent income stream that will provide financial resilience to those family farms, increasing their ability to weather future economic downturns and continue their small farming operations for decades to come.

These same economic forces provide a feedback mechanism that will serve to slow the conversion of cropland to solar use if crops provide a better economic return.”

In addition, the largest existential threat to agricultural production in Iowa is climate change. According to the U.S. Dept of Energy backed study, “**Climate Change and Maize Yield in Iowa**” ( Xu, Twine & Girvetz 2016), multiple simulations indicate that corn yields in Iowa will decline 15 to 50% by 2100 attributable to global warming, correlating a 6% yield decrease for every 1C increase. In an April 2021 study commissioned by the Environmental Defense Fund entitled, “The Near-Term Financial Impacts of Predicted Climate Change on Iowa Agriculture” found that Iowa farmers could see statewide gross farm revenues reduced by as much as \$4.9 billion per decade with 92 of Iowa’s 99 counties experiencing decreased agricultural revenues. These studies do not account for losses due to increasing catastrophic weather events that will further exacerbate the stresses places on Iowa agricultural production.

Current evidence of the catastrophic weather event is illustrated in a June 14, 2021, article published in *The Gazette* newspaper entitled “Hot and Dry Iowa Starting to Take Toll on Corn and Soybeans.” The article states that Iowa Secretary of Agriculture Mike Naig said that higher than normal temperatures and lower than normal rainfall are starting to take a toll on Iowa crops as drought and unusually dry conditions cause rivers to dwindle, and that “early planted crops are starting to show moisture stress, and the short-term forecast shows only minor chances of precipitation.” The article goes on to state that in the previous week the statewide average temperature was 77.8 degrees, or 8.6 degrees above normal, and that **almost all of Linn and Johnson counties are shown as being abnormally dry.** Again, the revenue provided by solar leases will enable the farmer “lessors” to weather economic downturns, including those created by catastrophic weather events. In addition, regardless of the catastrophic weather events, Linn County will have constant revenues in the form of taxes and other economic benefits stemming from the Project (as noted below), thus providing a level of insulation from extreme weather.

Finally, the Project will replace conventional, fossil fuel-based generation with clean, emission-free energy to help curb the impacts of climate change in Linn County.

## Adequate Public Facilities/Minimum Levels of Service

The Project will require both fire and police protection, which we anticipate will be provided by the local fire district and police/sheriff's department, and such arrangements for service will be made with those agencies. In addition, the Project will work with those agencies to develop an Emergency Management Plan tailored to address the specific needs of the Project.

In addition, the primary materials utilized in the PV module array are steel, aluminum, copper, and silicon (glass), so they do not provide fuel for a fire. Also, for the safety of the public, wildlife, and the premises, the Project will be surrounded by an 8' perimeter fence with strands of barbed wire on the top. There will also be secure access gates and onsite monitoring systems, which will be managed remotely.

As this is a remotely operated facility, there will be no need for water and wastewater services

Garbage/waste collection will not be necessary.

It will not be necessary for the local community and/or the county to provide road maintenance as all site roads will be private and will be maintained by the Project.

## Benefit to the Environment & the Community

The Project will produce 100% clean, renewable energy. There will be no CO<sub>2</sub> or other toxic air pollutants generated by the Project, so it will not be a contributor to the Linn County's carbon footprint. Also, solar generated power is a clean alternative to fossil fuel-burning power plants, including natural gas-fired power plants. Some of the benefits of clean, renewable solar energy is the ability to avoid other negative effects of fossil fuels such as:

- Does not create smog or contribute to declining air quality
- There is no odor associated with the power Project
- Does not contribute to respiratory ailments and other health impacts
- Does not release of toxins such as mercury and other greenhouse gases
- Does not consume water in the operation of the plant, nor does it generate ground pollution
- Minimal, if any impact on wildlife and ecosystems
- Operates with imperceptible noise
- There is no storage of toxic or otherwise hazardous materials

Specific to hazardous waste, according to the **Massachusetts Department of Energy Resources, "Questions & Answers: Ground Mounted Solar Photovoltaic Systems,"** PV module materials are enclosed, and do not mix with water or vaporize into the air, so there isn't risk of chemical releases to the environment, and even in the case of module breakage, there is little to no risk of chemicals releasing into the environment.

In addition, the electricity generated by the Project will power approximately 18,000 typical homes, as well as:

- Offset approximately 300 million pounds of CO<sub>2</sub> annually
- The CO<sub>2</sub> offset is equivalent to avoid burning approx. 15 million gallons of gasoline annually

In addition, concerning economic benefits, as is succinctly summarized in Dr. David Loomis's report, "Utility-scale solar energy projects have numerous economic benefits. Solar installations create job opportunities in the local area during both the short-term construction phase and the long-term operational phase. In addition to the workers directly involved in the construction and maintenance of the solar energy project, numerous other jobs are supported through the indirect supply chain purchases and the higher spending that is induced by these workers. Solar projects strengthen the local tax base helping to improve county services, schools, police and fire departments and infrastructure improvements, such as public roads."

Specific to the Project contributing to the environment in Linn County as noted above, there are several compelling benefits to the community that are attributable to the Project, which include:

- The Project is committed to being both a good neighbor and a good environmental steward in Linn County
- Linn County will receive an estimated \$4,750,00 in property tax revenue over the life of the Project.
- Per CIPCO, the electricity generated by the Project will serve the load within the CIPCO member system, including Linn County.
- As many as 300 construction jobs will be created at the peak of construction; many will be local contractors.
- During construction local communities will see an increase in hotel lodgings, restaurant, grocery/convenience store, service station, and laundromat etc., patronage.
- Considering long-term post-construction employment, although the Projects will be operated and monitored remotely, it is anticipated that there will be several high paying, full-time, local maintenance and operator jobs created.

## Repurposing and/or Disposal of Photovoltaic Modules

No hazardous waste will be generated by the Project. When properly maintained, PV modules have a useful life of decades. However, the modules will be removed from the site when replacement is necessary, and then at the end of the Project's 35-year useful life. Regardless, all modules will be removed and repurposed or recycled. Of note, no modules will be disposed of in Coconino County.

The modules used for Project will be state of the art monocrystalline silicon technology, and do not contain any hazardous materials that are called out by the Resource Conservation and Recovery Act (RCRA) e.g., they are not considered hazardous waste, and will not contaminate the environment. The modules are made up of materials we find in the items that surround us everyday items like cellular phones, televisions, and vehicles incorporate all the same materials used to construct the PV modules.

Monocrystalline silicon modules used by the Project are predominately constructed of silicon wafers sandwiched between two panels of glass. The silicon wafers are electrically connected using wiring and non-lead soldered joints, again similar to the everyday items listed above. The glass is then wrapped with an aluminum framing for stability. More detail on the make-up of monocrystalline silicon panels can be found at <https://www.clean-energy-ideas.com/solar/solar-panels/the-different-materials-used-to-make-solar-panels/>.

As noted, each of the components used in the construction of the modules are recyclable. This ability to recycle module components is paramount to the sustainability of our industry. As the industry continues to grow and mature, the recycling capacity for solar panels will grow to accommodate the number of facilities that are reaching their end of life. With today's technology, the vast majority of each module is able to be reused. High-value recycling can help minimize life cycle impacts and recover valuable and energy intensive materials, thereby increasing sustainability, for example, 100% of the aluminum, 95% of the glass and 85% of the silicon is considered recyclable/reusable according to Green Matters. More information on solar panel recycling can be found at <https://www.greenmatters.com/p/are-solar-panels-recyclable>.

Finally, properly functioning modules can be sold and repurposed.

#### Article IV, Section 107-69 (5) – Additional Standards for Review:

- a. The Project will take less than 640 acres out of existing agricultural use. However, the Project is finite in its lifespan – 35 years – after which the land can be returned to its existing agricultural use by the landowner.
- b. The Project will be operated remotely and will be primarily unmanned. There will be no need for additional public road maintenance, wastewater or culinary water services, trash removal, etc., hence, it will not be a burden upon local or county services or facilities. In addition, the Project will have excellent security protection as there will be constant remote monitoring, a well-maintained security fence, etc. Therefore, it is not expected that the Project will cause additional burden upon local police services. In addition, as previously mentioned, the primary materials utilized in the PV module array are steel, aluminum, copper, and silicon (glass), so they do not provide fuel for a fire.
- c. Land used by the Project will not degrade environmental ecological or natural resources. See *"Benefit to the Environment & the Community"* section in this narrative.
- d. The Project will achieve the densities and uses as defined in the Comprehensive Plan.
- e. The Project is consistent with the goals, objectives, and strategies of the Comprehensive Plan. As previously mentioned, the Guiding Principle of the Comprehensive Plan's alternative and renewable energy section is "Encourage and support the use of alternative and renewable energy resources and energy efficiency strategies." Utility-scale solar is a key component of the Plan.